

Release notes for ENDF/B Development n-099\_Es\_254  
evaluation



April 26, 2017

- fudge-4.0 Warnings:

1. Cross section does not match sum of linked reaction cross sections  
*crossSectionSum label 0: total (Error # 0): CS Sum.*

**WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 0.39%**

2. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 1 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

3. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 2 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission] [nubar]): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (9.080989e-09) is too small**

4. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 3 (total): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

5. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 3 (total): / Form 'eval': / Component 1 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

6. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 4 (n + Es254): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

7. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 4 (n + Es254): / Form 'eval': / Component 1 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

8. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + gamma [total fission]): / Form 'eval': / Component 0 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

9. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 8 (n[multiplicity:'energyDependent', emissionMode:'prompt'] + n[emissionMode:'6 delayed']) + gamma [total fission]): / Form 'eval': / Component 1 (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

10. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 11 (n + Es254\_e2): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (1.362142e-10) is too small**

11. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 12 (n + (Es254\_e3 -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (3.096188e-09) is too small**

12. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 13 (n + (Es254\_e4 -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (1.163473e-09) is too small**

13. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 14 (n + (Es254\_e5 -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (4.268116e-10) is too small**

14. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 15 (n + (Es254\_e6 -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (2.601669e-10) is too small**

15. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 16 (n + (Es254\_e7 -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (3.095104e-09) is too small**

16. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 17 (n + (Es254\_c -> Es254 + gamma)): / Form 'eval': (Error # 0): Condition num.*

**WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small**

17. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 18 ( $Es255 + \gamma$ ): / Form 'eval': / Component 0 (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

18. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 18 ( $Es255 + \gamma$ ): / Form 'eval': / Component 1 (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

19. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 19 ( $n + Es254$  [angular distribution]): / Form 'eval': (Error # 1): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

20. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 20 ( $n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + \gamma [total fission] [spectrum]$ ): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

21. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 21 ( $n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + \gamma [total fission] [spectrum]$ ): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

22. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 22 ( $n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + \gamma [total fission] [spectrum]$ ): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

23. The ratio of smallest/largest eigenvalue is quite small, possibly leading to numerical instability in downstream codes.

*Section 23 ( $n[multiplicity:energyDependent, emissionMode:'prompt'] + n[emissionMode:'6 delayed'] + \gamma [total fission] [spectrum]$ ): / Form 'eval': (Error # 0): Condition num.*

WARNING: Ratio of smallest/largest eigenvalue (0.000000e+00) is too small

- fudge-4.0 Errors:

- Duplicate Eout in outgoing distribution

*Reading ENDF file: ..../n-099\_Es\_254.endf (Error # 0): Bad Eout*

```
WARNING: skipping duplicate e_out = 5974440.0, ii = 68 6 10.0
WARNING: skipping duplicate e_out = 5974450.0, ii = 68 7 20.0
WARNING: skipping duplicate e_out = 5974460.0, ii = 68 8 30.0
WARNING: skipping duplicate e_out = 5974480.0, ii = 68 9 50.0
... plus 2 more instances of this message
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

```
WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
... plus 6 more instances of this message
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (200000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (215552.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

- Energy range of data set does not match cross section range

*reaction label 8: n + (Es254\_c ->Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_f / Multiplicity: (Error # 0): Domain mismatch (a)*

```
WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
```

9. Energy range of data set does not match cross section range  
*reaction label 8: n + (Es254\_c -> Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_g / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
10. Energy range of data set does not match cross section range  
*reaction label 8: n + (Es254\_c -> Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_h / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (300000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
11. Energy range of data set does not match cross section range  
*reaction label 8: n + (Es254\_c -> Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_i / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
12. Energy range of data set does not match cross section range  
*reaction label 8: n + (Es254\_c -> Es254 + gamma) / Product: Es254\_c / Decay product: gamma\_j / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (400000.0 -> 20000000.0) vs (108180.0 -> 20000000.0)
13. Calculated and tabulated Q values disagree.  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma (Error # 0): Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: -5359829.093566895 eV vs -5093030. eV!
14. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
15. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
16. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
17. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)

18. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
19. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
20. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
21. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
22. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
23. Energy range of data set does not match cross section range  
*reaction label 9: n[multiplicity:'2'] + Es253 + gamma / Product: gamma\_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (5500000.0 -> 20000000.0) vs (5113250.0 -> 20000000.0)
24. Calculated and tabulated Q values disagree.  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma (Error # 0): Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: -11711436.18591309 eV vs -1.14446e7 eV!
25. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)
26. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*
- WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

27. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

28. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

29. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

30. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

31. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

32. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

33. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

34. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

35. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_f / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

36. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_f / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

37. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_g / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

38. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_g / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

39. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_h / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

40. Energy range of data set does not match cross section range  
*reaction label 10: n[multiplicity:'3'] + Es252 + gamma / Product: gamma\_h / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (12000000.0 -> 20000000.0) vs (11490100.0 -> 20000000.0)

41. Calculated and tabulated Q values disagree.  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma (Error # 0): Q mismatch*

WARNING: Calculated and tabulated Q-values disagree: -17000967.73828125 eV vs -1.67342e7 eV!

42. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_a / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

43. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_a / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

44. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_b / Multiplicity: (Error # 0): Domain mismatch (a)*

WARNING: Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

45. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_b / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

46. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_c / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

47. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_c / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

48. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_d / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

49. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_d / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

50. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_e / Multiplicity: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

51. Energy range of data set does not match cross section range  
*reaction label 11: n[multiplicity:'4'] + Es251 + gamma / Product: gamma\_e / Distribution: / uncorrelated - angular - isotropic: (Error # 0): Domain mismatch (a)*

**WARNING:** Domain doesn't match the cross section domain: (17500000.0 -> 20000000.0) vs (16800600.0 -> 20000000.0)

52. Calculated and tabulated Q values disagree.  
*reaction label 13: Es255 + gamma (Error # 0): Q mismatch*

**WARNING:** Calculated and tabulated Q-values disagree: 5707630.31237793 eV vs 5974430. eV!

53. Multiplicity does not match sum of linked product multiplicities!  
*multiplicitySum label 9: n + (Es254\_c -> Es254 + gamma) total gamma multiplicity (Error # 0): summedMultiplicityMismatch*

**WARNING:** Multiplicity does not match sum of linked product multiplicities! Max diff: 19.34%

54. Multiplicity does not match sum of linked product multiplicities!  
 $multiplicitySum$  label 10:  $n[multiplicity:'2'] + Es253 + \text{gamma total gamma multiplicity}$   
 (Error # 0): *summedMultiplicityMismatch*
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 88.10%
55. Multiplicity does not match sum of linked product multiplicities!  
 $multiplicitySum$  label 11:  $n[multiplicity:'3'] + Es252 + \text{gamma total gamma multiplicity}$   
 (Error # 0): *summedMultiplicityMismatch*
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 100.00%
56. Multiplicity does not match sum of linked product multiplicities!  
 $multiplicitySum$  label 12:  $n[multiplicity:'4'] + Es251 + \text{gamma total gamma multiplicity}$   
 (Error # 0): *summedMultiplicityMismatch*
- WARNING: Multiplicity does not match sum of linked product multiplicities! Max diff: 100.00%
57. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 0:  $/reactionSuite/fissionComponents/fissionComponent[@label='0']$   
 (Error # 0): *Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.22337e8 eV!
58. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 1:  $/reactionSuite/fissionComponents/fissionComponent[@label='1']$   
 (Error # 0): *Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.22337e8 eV!
59. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 2:  $/reactionSuite/fissionComponents/fissionComponent[@label='2']$   
 (Error # 0): *Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.22337e8 eV!
60. Calculated and tabulated Q values disagree.  
 $fissionComponent$  label 3:  $/reactionSuite/fissionComponents/fissionComponent[@label='3']$   
 (Error # 0): *Q mismatch*
- WARNING: Calculated and tabulated Q-values disagree: 237620778487.973 eV vs 2.22337e8 eV!
61. A covariance matrix was not positive semi-definite, so it has negative eigenvalues.  
 $Section 19 (n + Es254 [angular distribution]): / Form 'eval': / LegendreLValue L=1 vs 1$   
 (Error # 0): *Bad evs*
- WARNING: 11 negative eigenvalues! Worst case = -7.258633e-05

- njoy2012 Warnings:

- Evaluation has no resonance parameters given  
*unresr...calculation of unresolved resonance cross sections (0): No RR*

```
---message from unresr---mat 9914 has no resonance parameters
copy as is to nout
```

2. In some evaluations, the partial fission reactions MT=19, 20, 21, and 38 are given in File 3, but no corresponding distributions are given. In these cases, it is assumed that MT=18 should be used for the fission neutron distributions.  
*heatr...prompt kerma (0): HEATR/hinit (3)*

```
---message from hinit---mt19 has no spectrum
          mt18 spectrum will be used.
```

3. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (1): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 16 does not give recoil za= 99253
          one-particle recoil approx. used.
```

4. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (2): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 17 does not give recoil za= 99252
          one-particle recoil approx. used.
```

5. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (3): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 37 does not give recoil za= 99251
          one-particle recoil approx. used.
```

6. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (4): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 51 does not give recoil za= 99254
          one-particle recoil approx. used.
```

7. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (5): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 52 does not give recoil za= 99254
          one-particle recoil approx. used.
```

8. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (6): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 53 does not give recoil za= 99254
          one-particle recoil approx. used.
```

9. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (7): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 54 does not give recoil za= 99254
          one-particle recoil approx. used.
```

10. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (8): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 55 does not give recoil za= 99254
          one-particle recoil approx. used.
```

11. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (9): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 56 does not give recoil za= 99254
      one-particle recoil approx. used.
```

12. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (10): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 57 does not give recoil za= 99254
      one-particle recoil approx. used.
```

13. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (11): HEATR/hinit (4)*

```
---message from hinit---mf6, mt 91 does not give recoil za= 99254
      one-particle recoil approx. used.
```

14. Recoil is not given, so one-particle recoil approximation used.  
*heatr...prompt kerma (12): HEATR/hinit (4)*

```
---message from hinit---mf6, mt102 does not give recoil za= 99255
      photon momentum recoil used.
```

15. There is a problem with the fission energy release.  
*heatr...prompt kerma (21): HEATR/nheat (3)*

```
---message from nheat---changed q from  2.223370E+08 to  2.111310E+08
      for mt   18
```

16. Evaluation has no resonance parameters given  
*purr...probabalistic unresolved calculation (0): No RR*

```
---message from purr---mat 9914 has no resonance parameters
      copy as is to nout
```

- **xsectplotter Errors:**

1. Duplicate Eout in outgoing distribution  
*(Error # 2): Bad Eout*

```
WARNING: skipping duplicate e_out = 5974440.0, i1 = 68 6 10.0
WARNING: skipping duplicate e_out = 5974450.0, i1 = 68 7 20.0
WARNING: skipping duplicate e_out = 5974460.0, i1 = 68 8 30.0
WARNING: skipping duplicate e_out = 5974480.0, i1 = 68 9 50.0
... plus 2 more instances of this message
```